



# ***Enterprise Integration Using Simulation Based Acquisition***

***BGen Robert Latiff  
ESC/CV***



# Objectives

---

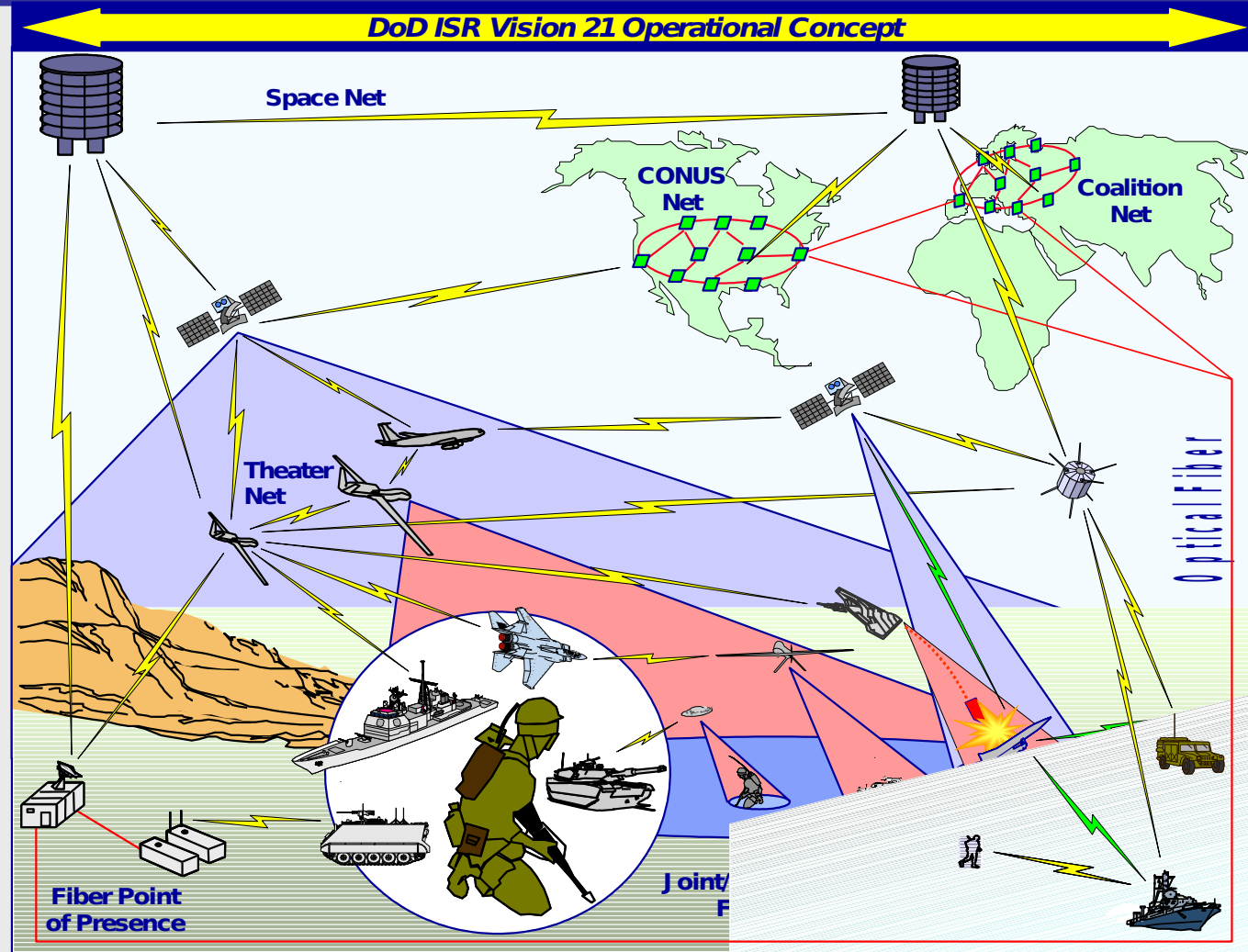
- **The Challenge**
  - **Multi-Sensor Command and Control Constellation**
- **Architectures**
- **Simulation Based Acquisition**
- **Enterprise Integration Case Study**
  - **Link-16 Analysis and Engineering**
- **Joint Synthetic Battlespace**
- **Conclusion**



# The Challenge: System Interoperability &

“Integrated and responsive ISR capabilities operating in a collaborative enterprise assuming delivery of timely, relevant information for the NCA and Joint / Combined forces”

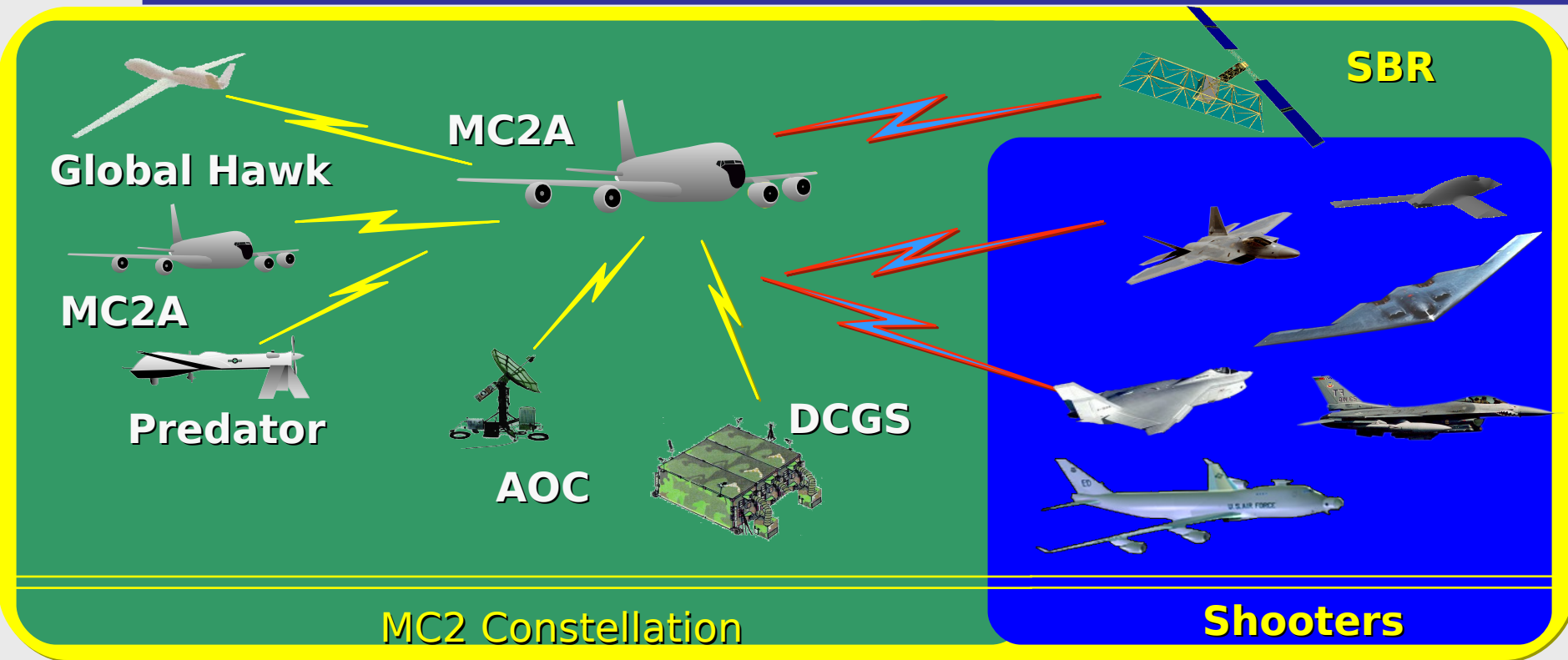
Challenge is Getting there!



Source: Intelligence, Surveillance, and Reconnaissance Integrated Capstone Strategic Plan, ASD(C3I), 3 Nov 00



# The Multi-Sensor C2 Constellation Approach



- Simulation Enhanced Capability Enablers
- Legacy Systems Transition

- Industry Involvement
- System of Systems Integration Required

**Key Enabler for the Global Strike Task Force Concept**



# Operational Attributes for MC2A

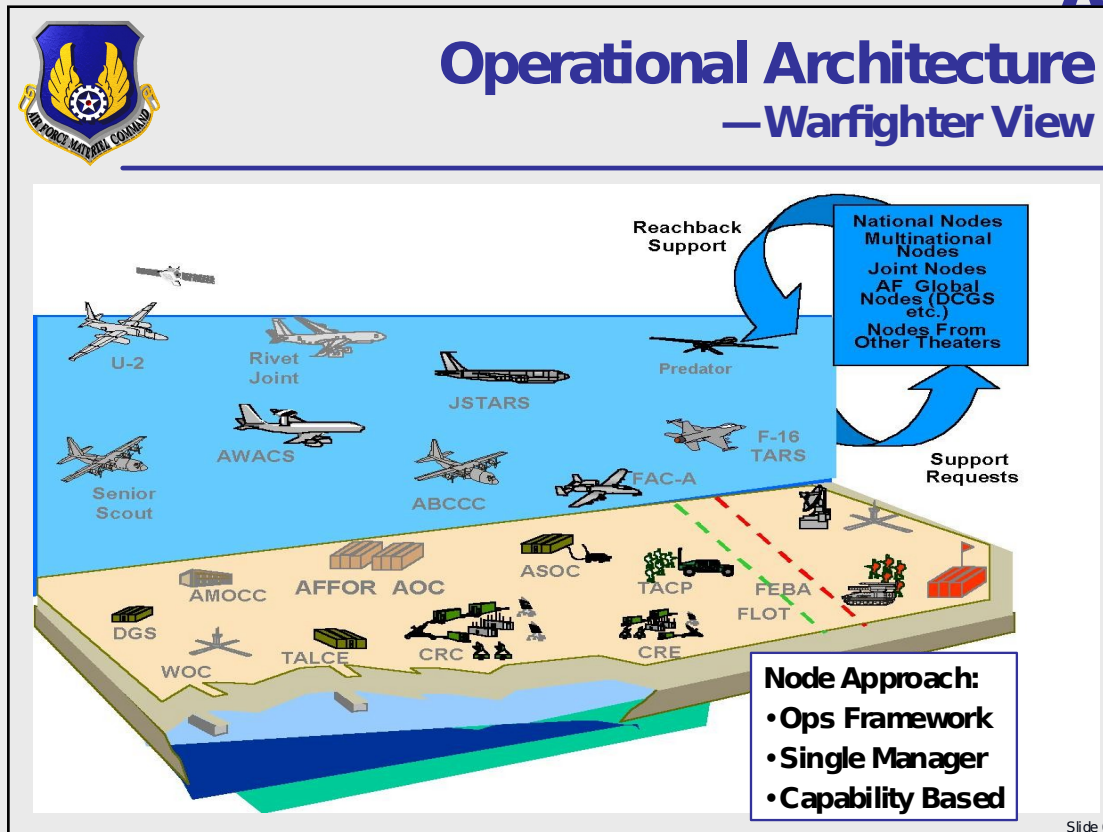
- **Air Force**
  - MT3C
  - BMTC (Cobra Judy)
  - DCGS
  - MP-RTIP
  - Other
- **Other Service**
  - Army (ACS, FCS)
  - Navy (AEA, MMA)
  - CG (Deep Water)
  - Other
- **Joint**
- **National**
- **Coalition**

**The challenge is to:**

- Define / refine the operational “trade space”
- Deliver a set of “enterprise solutions”

# “Building it right”

## --Enterprise Integration Begins at the Architecture View



## Systems Architecture—C2ISR Architect's View



- Manage the C2 Enterprise through the nodes.
- Each SPO is responsible for managing their node--AWACS, J STARS, AOC, etc..
  - Integrated Command & Control SPO manages node integration for interoperability.

Slide 7





# What is SBA?

- **A process that enables effective systems integration:**
  - Enterprise Management
  - Developmental Planning
  - Capabilities/Effects Based Requirements Development
- **An initiative within AFMC to provide with integrated simulations, information technologies and processes to:**
  - Place the acquisition activity in the warfighter environment
  - Reduce cost & time developing & sustaining systems
  - Support life cycle product improvement
  - Enable information sharing
  - Enhance product quality

**A Better Product to the Warfighter - Faster!**



# How Should SBA Be Applied?

## ATD/ACTDs



Sensor Craft

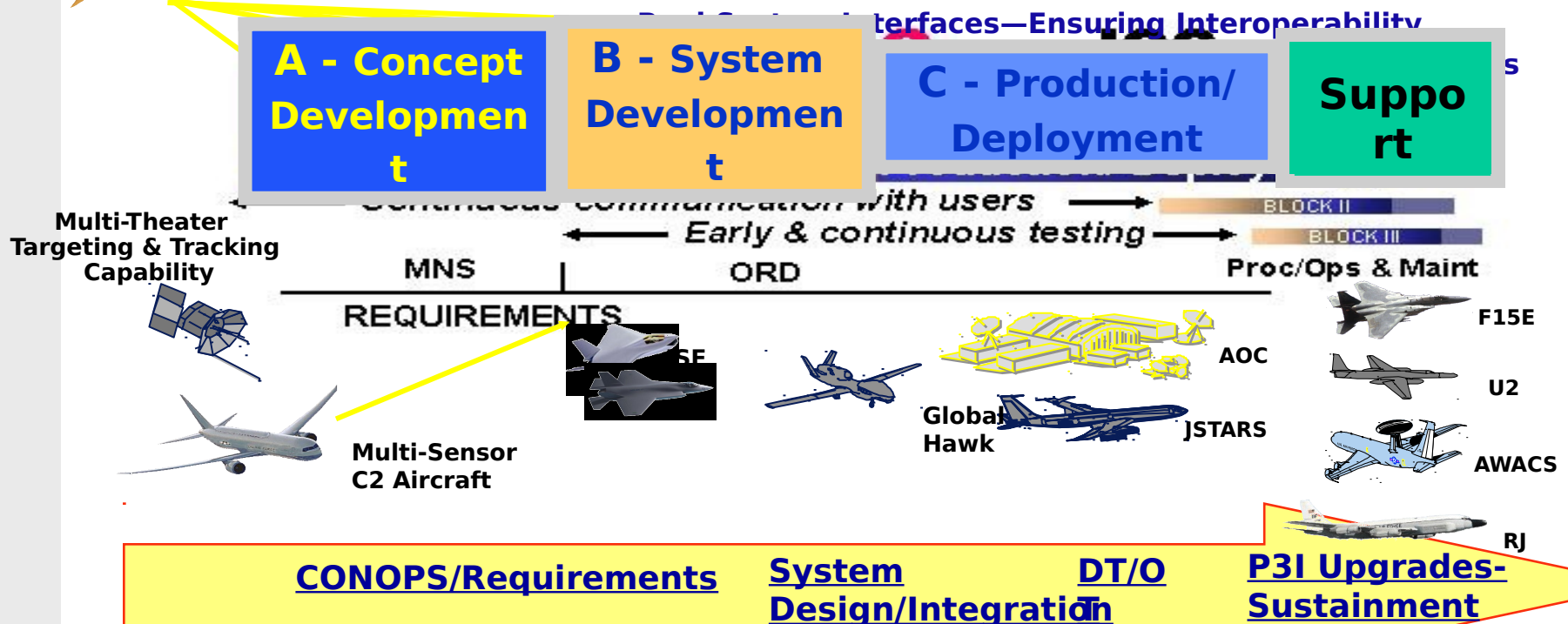


UCAV

## ▪ Throughout Each System's Life Cycle

- Warfighter/Developer Collaboration—Better Requirements
- Improved Insight to Operational Trades—Supporting CAIV
- Consistent Environment for Design & Test—Reducing Risk

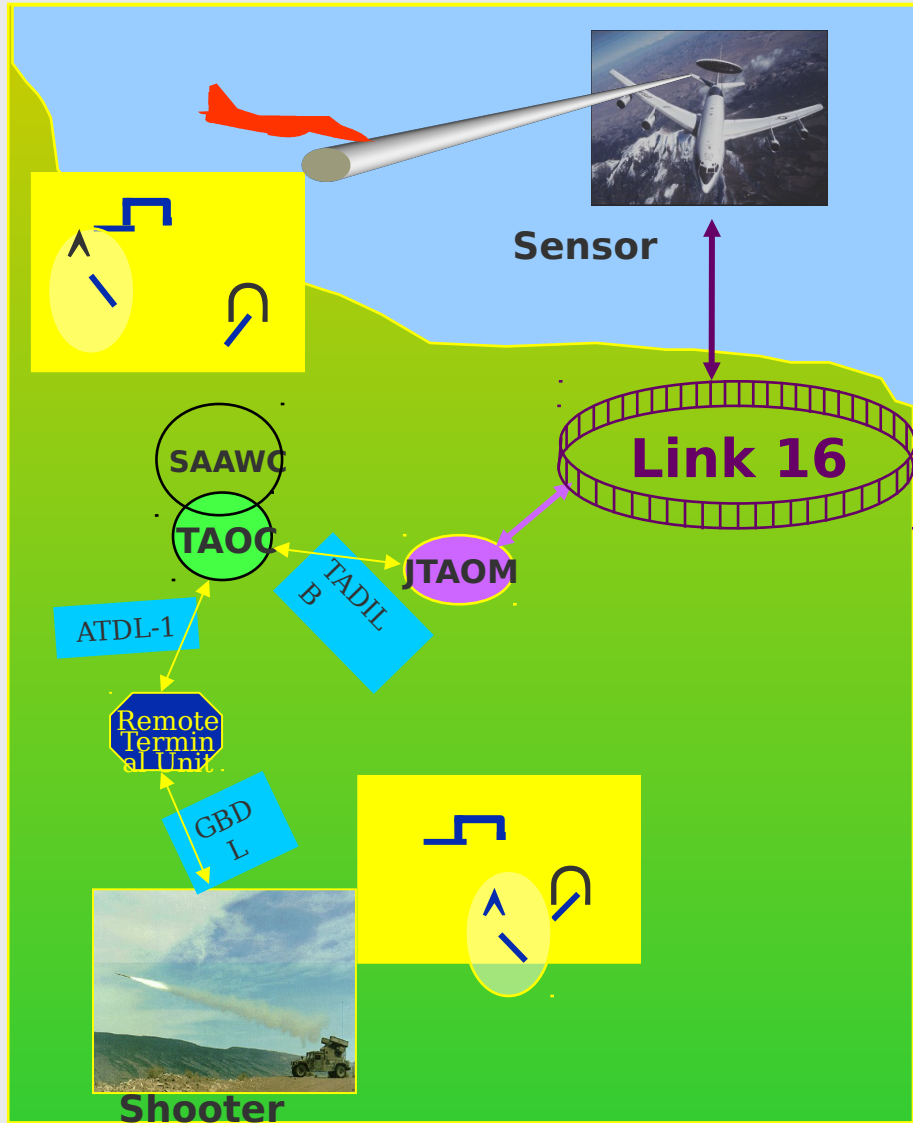
## ▪ Across All Systems







# Air Picture on Link 16 --Today's Reality

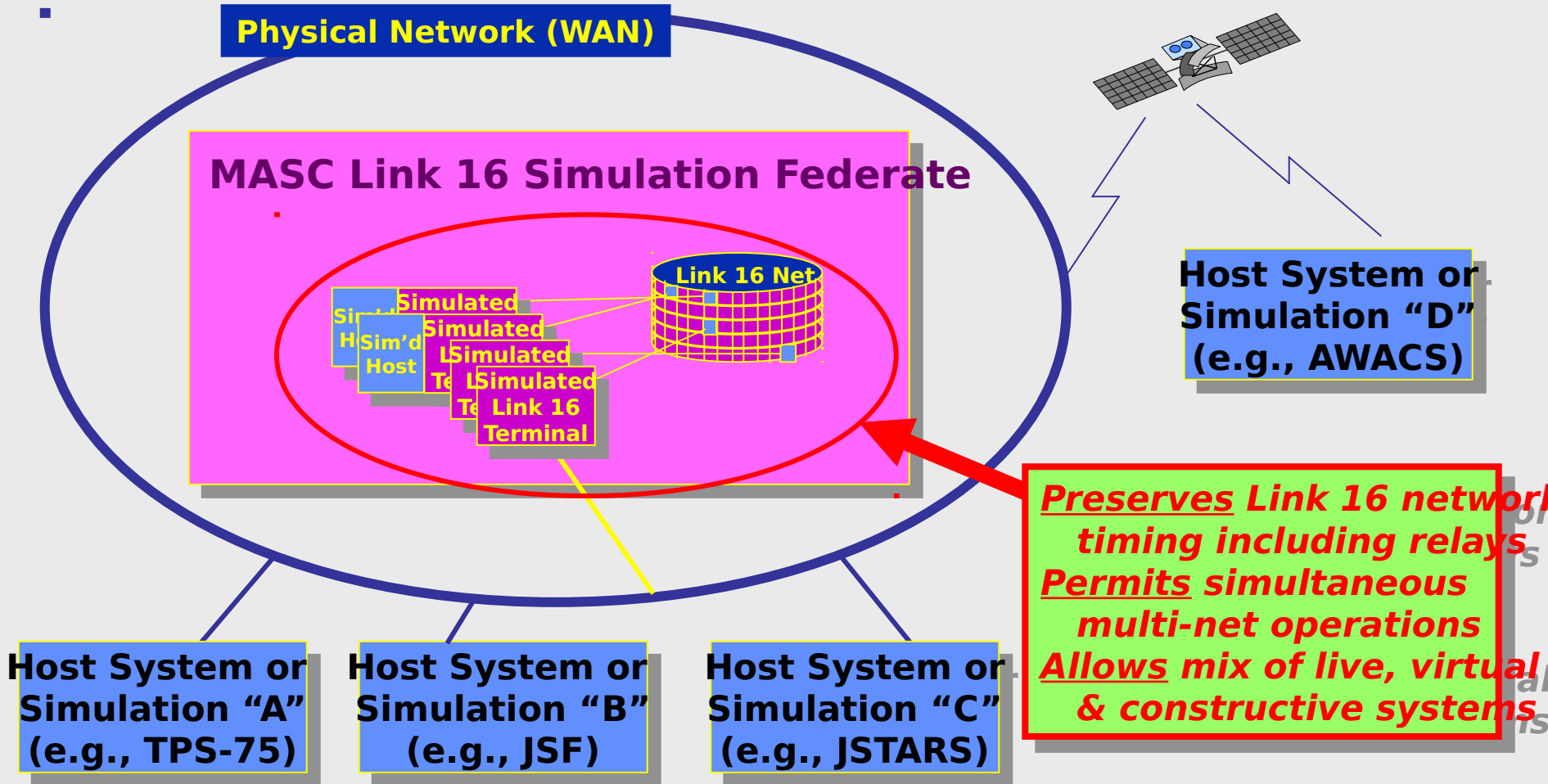


- Erratic tracking
- Dual/multiple track designations
- Misidentifications
- Track ID conflicts
- Frequent track # changes
- Frequent track # swaps
- Reliance on voice deconfliction
- Operator overload



# JSF Link 16 M&S Architecture

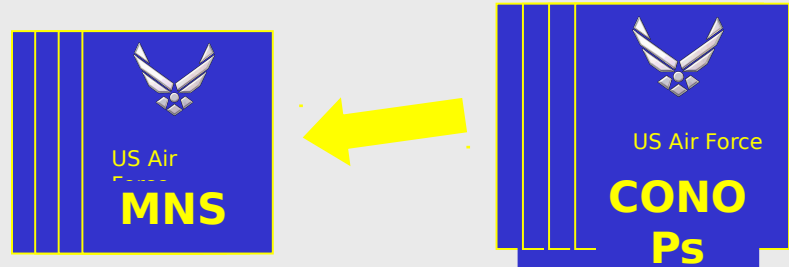
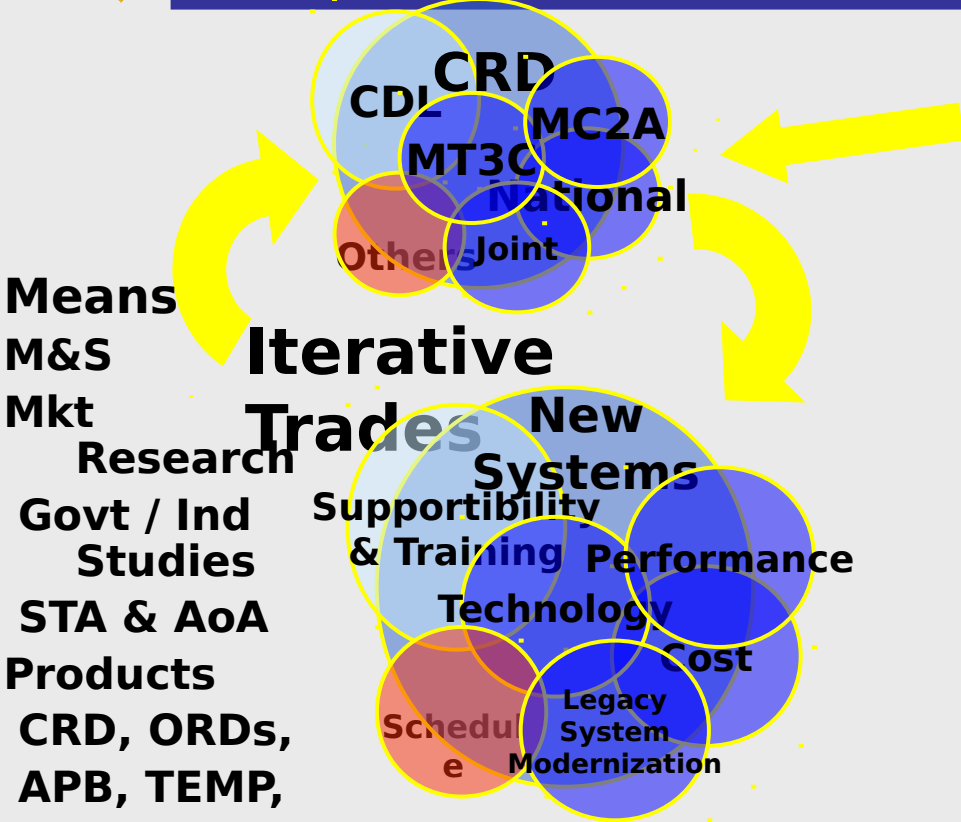
## (Remote Host-to-Terminal Interface)





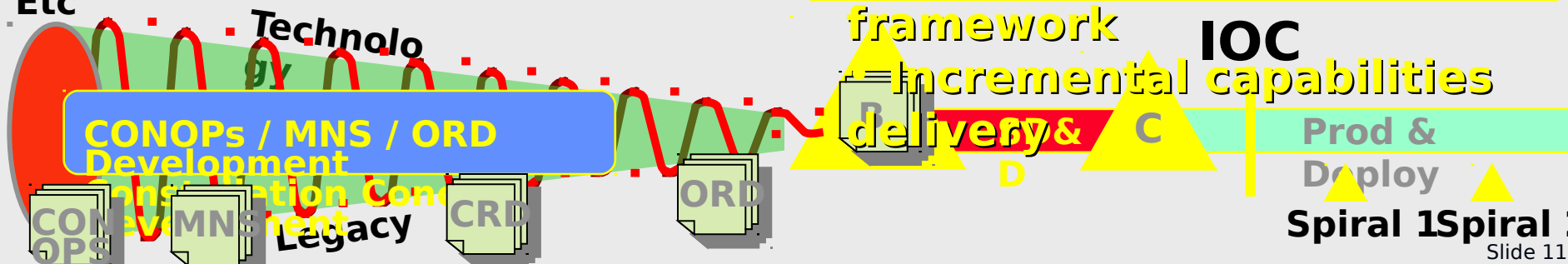
# Enterprise Integration

## How to Proceed



**Enterprise Acquisition**

- Warfighter needs initiated w/ provides integrated system of systems
- Requirements defined in Non-traditional acquisition strategy
- Flexible DoD 5000





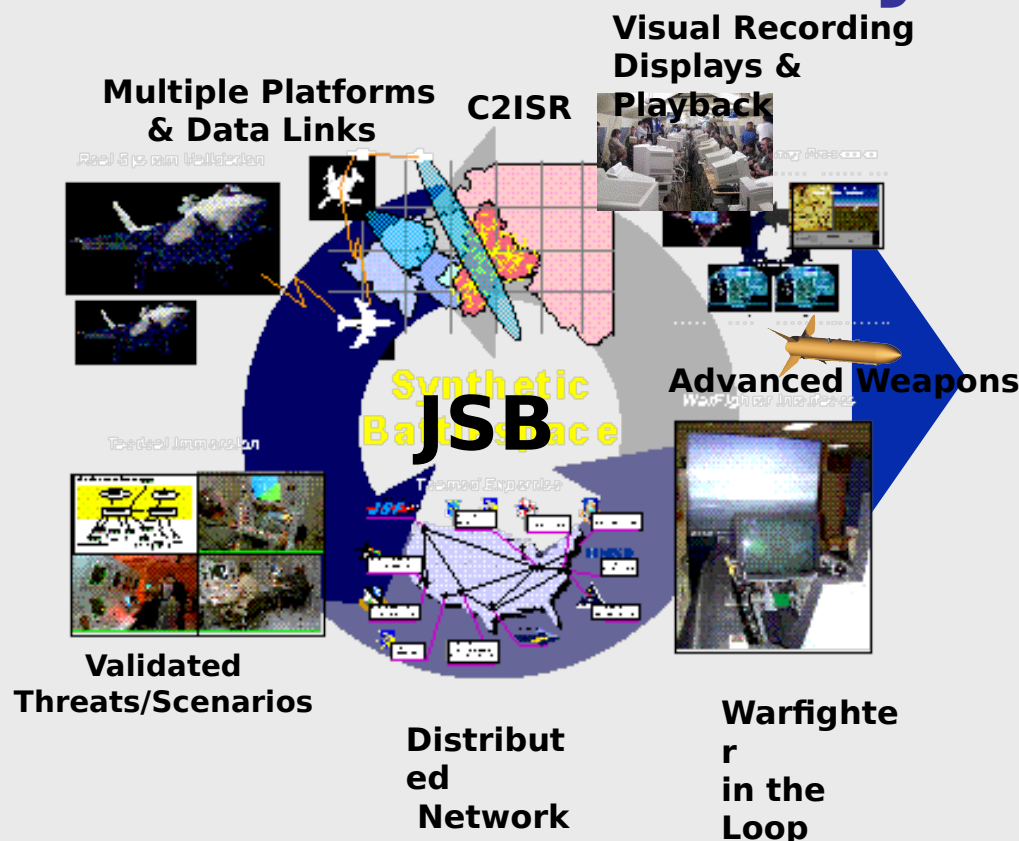
# Joint Synthetic Battlespace

## A Key Element of SBA

**WHY?**

*Tactical and Analytical Realism*

- WarFighter/Developer Collaboration
- Real System Interfaces (HWIL/SWIL)
- Improved Insight to Operational Trades
- Demonstrate Large Scale Exercises
- Interoperability Testing
- Family of Systems approach to System Effectiveness
- True Industry/Government Partnership



**Levels Playing Field Across the Industry-Government Enterprise**



# Joint Synthetic Battlespace Enabling Tool for System Acquisition

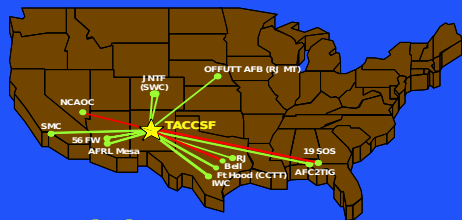
## ■ Immerses the Acquirer in the Warfighter's Environment

**Quicker Fielding - Avoid Redesign/Mistakes**

**Cost Avoidance - Total Systems Savings**

**Improved Product - Better Design/Operator Interfaces**

### WARFIGHTER



- Training
- Mission Rehearsal
- Operations Definition

### Joint Synthetic Battlespace

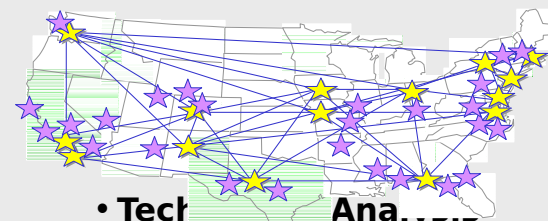


- Repeatable
- Variable Resolution/Fidelity
- Verified/Validated/Trusted
- Distributed or Standalone

### ACQUISITION



Government Sites  
Contractor Sites



- Tech Analysis
- Design Trades
- Systems Engineering
- Integration and Test
- Operational Testing

- "Corporate" Infrastructure



# Conclusion

---

- **The Challenge: Managing A Complex System of Systems and ensuring their Interoperability and Integration**
- **The Solution: Enterprise Integration using Principles of Simulation Based Acquisition**
  - **With a firm foundation of the Architectural Perspective grounded in M&S**

**Enterprise Integration:  
Achievable Now & Necessary for the Future**